California Monthly Climate Summary
November 2009

Weather Highlights

November 2009 was a rather unimpressive dry month for California. According to the Western Region Climate Center's California Climate Tracker, the monthly average temperature was 48.5°F which is 0.4°F higher than the long-term average of 48.1°F. With a statewide average of 0.75 inches, precipitation for November was only 26% of the long term average.

November started out with sunny, dry conditions across the state. Towards the middle of the first week, some rain was observed on the North Coast and northern mountain areas of the state. The Pacific High continued to dominate most of California's weather in the second week of the month. The exception was the North Coast which continued to get clipped by passing cold fronts. Passing weather systems continued to bring showers to the northern part of the state in the third week of the month while the southern part of the state only saw temperatures cool off a bit. The month finished off with a storm system moving across the state bringing precipitation and wind. Southern California only saw scattered showers from this system.

Preliminary records, reported on the National Weather Service Record Event Report, shows that statewide there were 12 temperature records tied or broken and 1 precipitation record tied or broken for the month. Of the 12 temperature records, 10 were for new high maximum temperatures. Records were set over 7 days of the month. The only precipitation record was set on November 28th at the Barstow/Daggett Airport when 0.21 inches of precipitation fell. This broke the old daily record of 0.05 inches set back in 1981. For temperature, Needles tied a 1949 record high temperature on November 3rd with a reading of 89°F. Montague broke a 1949 record on November 4th with a high temperature of 76°F. The old record was 75°F.

For the California Data Exchange Center's (CDEC) network of temperature gages used in this report, 161 stations recorded a minimum temperature below freezing in November while only 1station reached or exceeded 100°F at least once during the month. Statewide extremes from the CDEC network of temperature gages are shown below. Also shown are the monthly average extremes from the CIMIS network. A table of regional average minimum, mean, and maximum temperatures from the CDEC and CIMIS networks is also shown at the end of the summary.

Precipitation in November was below normal for all regions of the state. For the CDEC precipitation gages for November 2009, the largest amount of precipitation recorded was Gasquet Ranger Station with 10.50 inches. This is 74% of the average precipitation for this station for November. At the other end of the spectrum, 12 stations recorded no precipitation for the month. For the CIMIS network, Sisquoc in Santa Barbara County topped the precipitation charts with 3.64 inches for the month and 22 stations recorded no precipitation. Some CIMIS gages may show large precipitation totals if the gages are not covered during irrigation activities so care

should be given to review precipitation data used from this network. The 8-Station Index for northern California precipitation recorded 2.2 inches in November with 14 days showing precipitation. On average, 6 inches of precipitation is recorded for the 8-Station index in November. Statewide, the average precipitation for November was 32% of the long-term average based on the California Data Exchange Center (CDEC) gages. Precipitation percentages by region from the CDEC gages are shown in a table at the end of this document.

CoCoRaHS Update

November 2009 continues California's second year with CoCoRaHS – the Community Collaborative Rain, Hail and Snow Network. This group uses citizen volunteers to record rain, hail and snow data. The users enter the data online at the CoCoRaHS web site. The web site provides the opportunity to see spatial detail of rain and snow patterns in participating states. After one year in the program California has more than 550 volunteers signed up spanning 50 of California's 58 counties. The county with the most volunteers at the end of November is Sonoma with more than 80 volunteers. For the month of November 7,701 reports were recorded for California. The largest daily rain total for CoCoRaHS- CA in November was in Humboldt County with 2.52 inches recorded on 11/6/09. Two hail reports were submitted in November with one in San Diego County and one in Riverside County. Both reports were for 0.25 inch (pea size) hail. Twenty-four snow reports were included with the precipitation reports with a nine inch total being the largest new snow total from Placer County on the 21st. To join CoCoRaHS or find more information, please visit http://www.cocorahs.org.

Snowpack and Water Supply Conditions

October kicked off water year 2010 for the water supply index categories. Water year 2009 resulted in a dry category for the Sacramento Basin and below normal for the San Joaquin Basin. Water supply information for California can be found at http://cdec.water.ca.gov/water_supply.html. A historical listing of water year categories for both basins can be found at http://cdec.water.ca.gov/cgi-progs/iodir/WSIHIST.

Drought Monitor and Seasonal Outlook

November's dry weather brought about some degradation in California's drought as depicted in the Drought Monitor. The maps for California for October 27, 2009 and December 1, 2009 are shown below. The Drought Monitor maps can be found on the National Drought Mitigation Center's (NDMC) website http://drought.unl.edu/dm/. These maps are largely a reflection of precipitation and soil moisture deficit estimates. As of the December 1st depiction, the entire state of California is depicted in either D0 (abnormally dry), D1 (moderate drought) conditions, or D2 (severe drought) conditions. The D2 category did not change while increases in areas in D0 or D1 were observed. Drought free area in California decreased from 9.1% to 7.7%. Maps are updated weekly.

The U.S. Seasonal Drought Outlook for December through February from NOAA depicts California with improving conditions across the state based on climatology and an expectation for a wetter than average winter largely due to the evolving El Niño conditions in the tropical Pacific. Updates are provided twice per month. Maps and information can be found at http://www.cpc.noaa.gov/products/expert_assessment/seasonal_drought.html.

The California Nevada River Forecast Center has begun producing some drought monitoring tools for California. These tools look at the frequency associated with precipitation deficits for the Northern California Eight Station Index and the San Joaquin Five Station Index. Another tool looks at the frequency of end-of-month storage for select reservoirs in California. The frequencies of the observations are related to the Drought Monitor's drought categories D0 through D4. These tools can be found at http://www.cnrfc.noaa.gov/climate.php. For November, the Eight Station Index is in drought free conditions for a 12-month period and D0 for the 24 month period. The Five Station Index is drought free for both periods. For the reservoirs for end-of-November storage, Oroville is at a D3 storage, Trinity and Shasta reservoirs are at a D2 level while Berryessa, Folsom, Lake Tahoe, San Luis, Nacimiento/ SanAntonio, and Casitas are at a D1 level. Lake Isabella is at a D0 level and all other reservoirs on the graphic are considered to be drought-free.

ENSO Conditions and Long-Range Outlooks

The El Niño/Southern Oscillation (ENSO) is being classified as an El Niño pattern. Equatorial sea surface temperature anomalies for the tropical Pacific for October have been positive with values of 1.7°C in the Niño 3.4. The September through November 3-month running mean of the Ocean Niño Index (ONI) is 1.2 which is the fifth ONI value above the threshold to qualify for an El Niño event. Five consecutive ONI values need to be above the threshold value of 0.5 for conditions to be classified as an El Nino event. Most forecast models have the tropical sea surface temperatures remaining in El Niño conditions through the early part of 2010. More information can be found at the Climate Prediction Center's web site: http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/ Updates are posted weekly. The latest three month outlook (December through February) from NOAA indicates equal chances for above or below normal temperatures for the entire state of California with the exception of the northeast corner of the state which is forecast to have above normal temperatures. For precipitation, the entire state is forecast to have above normal conditions. Outlook plots and discussions can be fount at http://www.wrcc.dri.edu/longrang/. General weather information of interest can be found at http://www.noaawatch.gov/. For anomaly information please see http://www.wrcc.dri.edu/anom/cal_anom.html.

Agricultural Data

Harvest neared completion for many crops in November for California. Rice, alfalfa, cotton, bean, and silage corn harvest all neared completion. Ground preparation began for 2010 crops. Pomegranates and mandarins continued to be harvested in the San Joaquin valley while kiwi and grape harvests wound down. Walnut, pistachio, and pecan harvests also wound down in the Central Valley. Vegetable harvests continued across the state at different rates for different crops. Winter vegetables such as beets, choys, chards, daikon, kales and turnips showed improvement in quality and quantity during the month. Milk production was up due to the cooler temperatures while cattle continued to need supplemental feeding in low elevation rangelands. Range conditions improved with October's rains, but November's dry weather and cold temperatures limited further improvement. For further crop information see http://www.nass.usda.gov/index.asp.

Other Climate Summaries

California Climate Tracker (new product of Western Region Climate Center)
Golden Gate Weather Service Climate Summary
NOAA Monthly State of the Climate Report

Statewide Extremes (CDEC)

High Temperature – 101°F (Buttercup, Colorado River Desert)
Low Temperature – 2°F (Bogard Ranger Station, North Lohantan)
High Precipitation – 10.50 inches (Gasquet Ranger Station, North Coast)
Low Precipitation – 0 inches (12 Stations)

Statewide Extremes (CIMIS)

High Average Maximum Temperature – 82.8^0F (Santa Clarita, Los Angeles County)
Low Average Minimum Temperature – 21.5^0F (Buntingville, Lassen County)
High Precipitation – 3.64 inches (Sisquoc, Santa Barbara County)*
Low Precipitation – 0 inches (22 stations)
*Sometimes irrigation water from sprinklers gets counted as precipitation if the gage is not covered.

Statewide Precipitation Statistics

Hydrologic Region	Region Weight	Basin Reporting			Stations Reporting			% of Historic Average	
		Basins	Nov	Oct-Nov	Stations	Nov	Oct-Nov	Nov	Oct-Nov
North Coast	0.27	5	5	5	19	12	12	55.9%	71%
SF Bay	0.03	2	2	2	6	3	2	19.1%	118%
Central Coast	0.06	3	2	2	11	4	4	0.0%	174%
South Coast	0.06	3	3	3	15	11	10	23.2%	51%
Sacramento River	0.26	5	5	5	43	29	26	36.0%	70%
San Joaquin River	0.12	6	6	6	25	19	19	20.9%	89%
Tulare Lake	0.07	5	5	5	28	24	24	17.3%	79%
North Lahontan	0.04	3	3	3	14	7	6	41.4%	81%
South Lahontan	0.06	3	3	3	15	6	6	7.7%	49%
Colorado River	0.03	1	1	1	6	3	3	5.7%	4%
Statewide Weighted Average	1	36	35	35	182	118	112	32.4%	76.9%

Statewide Mean Temperature Data by Hydrologic Region (degrees F)

Hydrologic Region	No. Stations	Minimum	Average	Maximum
North Coast	30	28.5	43.9	70.6
SF Bay	18	38.0	51.5	69.5
Central Coast	33	40.1	54.5	74.8
South Coast	61	40.3	58.5	84.3
Sacramento	90	28.0	45.2	73.3
San Joaquin	72	31.0	46.9	71.9
Tulare Lake	15	23.7	42.9	72.9
North Lahontan	10	16.2	36.3	63.4
South Lahontan	19	24.1	43.7	69.1
Colorado River Desert	20	44.3	62.5	83.6
Statewide Weighted Average	368	29.7	46.5	72.7

U.S. Drought Monitor

October 27, 2009
Valid 7 a.m. EST

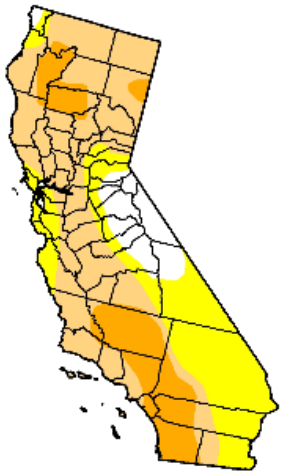
California

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	9.1	90.9	62.5	17.7	0.0	0.0
Last Week (10/20/2009 map)	10.6	89.4	61.2	17.7	0.0	0.0
3 Months Ago (08/04/2009 map)	0.8	99.2	72.8	44.3	0.0	0.0
Start of Calendar Year (01/06/2009 map)	1.7	98.3	88.2	41.3	2.8	0.0
Start of Water Year (10/06/2009 map)	0.0	100.0	73.4	45.8	0.0	0.0
One Year Ago (10/28/2008 map)	0.0	100.0	93.6	55.6	0.0	0.0

Intensity:

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional



The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements

http://drought.unl.edu/dm

Released Thursday, October 29, 2009
Author: M. Rosencrans, CPC/NOAA

U.S. Drought Monitor

December 1, 2009
Valid 7 a.m. EST

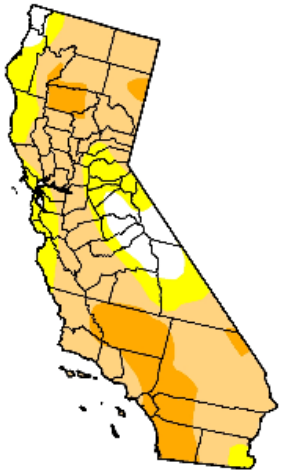
California

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	7.7	92.3	74.0	17.3	0.0	0.0
Last Week (11/24/2009 map)	8.4	91.6	73.6	17.3	0.0	0.0
3 Months Ago (09/08/2009 map)	0.0	100.0	73.4	45.8	0.0	0.0
Start of Calendar Year (01/06/2009 map)	1.7	98.3	88.2	41.3	2.8	0.0
Start of Water Year (10/06/2009 map)	0.0	100.0	73.4	45.8	0.0	0.0
One Year Ago (12/02/2008 map)	0.0	100.0	86.0	41.3	0.0	0.0

Intensity:

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional



The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements

http://drought.unl.edu/dm

Released Thursday, December 3, 2009
Author: Anthony Artusa, CPC/NOAA